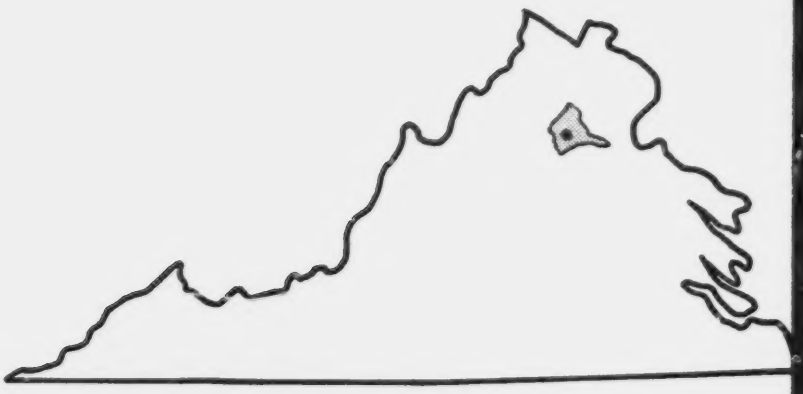
MAR 0 4 1989

FEMA 209: 510042

FLOOD INSURANCE STUDY

TOWN OF CULPEPER, VIRGINIA
CULPEPER COUNTY



MARCH 2, 1989

Federal Emergency Management Agency

COMMUNITY NUMBER - 510042

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY
TOWN OF CULPEPER, CULPEPER COUNTY, VIRGINIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Culpeper, Culpeper County, Virginia, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by Bernard Johnson Incorporated for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-86-C-2247. This work was completed in May 1987.

1.3 Coordination

On January 15, 1986, an initial Consultation and Coordination Officer's meeting was held with representatives of FEMA, the Town of Culpeper, the County of Culpeper, the Rappahannock-Rapidan Planning District, the Soil Conservation Service (SCS), and Bernard Johnson Incorporated (the study contractor). This meeting provided information regarding flood history, flood structures, and available community maps.

Discussions were held with SCS design engineers regarding the five SCS dams that regulate flow above the corporate limits. It was concluded that their design notes and computations would be useful

only to a limited degree. During the study, the agencies listed above along with the U. S. Geological Survey (USGS) and the State Water Control Board were contacted for comments on the proposed discharges used in the study.

On March 22, 1988, a final CCO meeting was held with representatives of FEMA, the town, and the study contractor to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Culpeper, Culpeper County, Virginia. The U. S. National Cemetery, which is located within the corporate limits, is not included in this study. The area of study is shown on the Vicinity Map (Figure 1).

Mountain Run was studied by detailed methods for its entire length within the community. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through May 1992.

Balds Run, Hidens Branch, Vaughn Branch, Metlock Branch, and Lake Pelham were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Town of Culpeper.

2.2 Community Description

The Town of Culpeper is centrally located in Culpeper County in the north central portion of Virginia. The town is approximately 75 miles southwest of Washington, D. C.; 35 miles west of Fredericksburg; 45 miles northeast of Charlottesville; and 90 miles northwest of Richmond (Reference 1). Visible to the west of the town are the Blue Ridge Mountains and the Shenandoah National Park. The county is bounded by the Rappahannock River and the unincorporated areas of Fauquier County to the northeast, the Rapidan River and the unincorporated areas of Orange County to the southeast, Madison County to the southwest, and Rappahannock County to the northwest.

The town presently consists of approximately 4,313 acres, with a 1980 estimated population of 6,621 as compared to a 1970 estimate of 6,056. The towns population is expected to increase at a modest rate as compared to the county's. By 1995, the estimated increase in the towns population will be 16 percent while Culpeper County's increase will be 59 percent (Reference 1).

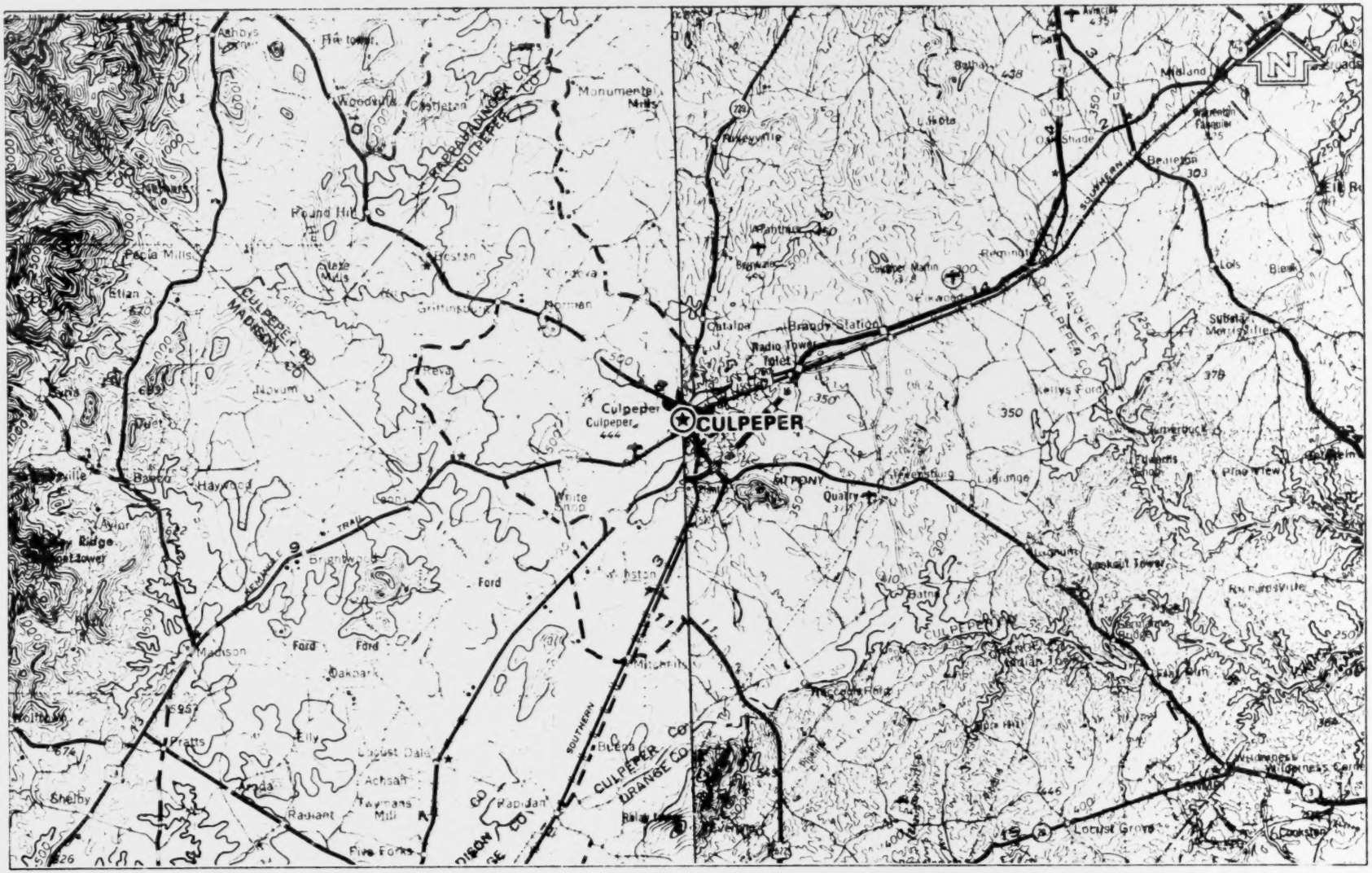


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CULPEPER, VA

(CULPEPER CO.)

APPROXIMATE SCALE

2000 0 2000 4000 6000 FEET

VICINITY MAP

3

The majority of the land within the town can be characterized as rolling, moderately sloping to hillside. The large majority of the slopes, greater than 15 percent in town, are found on the first valley slopes of stream channels, and in many cases, abut floodplain limits (Reference 1).

Land use within the corporate limits is comprised mainly of vacant and agricultural land (60%) with residential use being the next major component (21%). The remaining uses are almost evenly divided among industry (6%), public/semi public (5%), general business (4%), and open spaces/ community uses (4%). There is currently little or no development within the floodplain, with the exception of some non-residential structures that are located on higher elevations.

The Town of Culpeper is situated entirely within the Mountain Run watershed. Mountain Run begins approximately 10 miles upstream of the corporate limits and empties into the Rappahannock River approximately 16 miles downstream of Culpeper. The length of flow through the town is approximately 2.5 miles, and the watershed area is approximately 35 square miles at the downstream corporate limits and 26 square miles at the upstream corporate limits. Elevations in the watershed above the town range from 800 feet to 350 feet above NGVD. There are several tributaries that have their confluences within the town including Balds Run, Hidens Branch and Metlock Branch.

Mean annual temperatures vary slightly in Culpeper from year to year, but average approximately 56 degrees Fahrenheit (^{o}F). January is the coldest month with an average mean temperature of 35.3^{o}F. July is the warmest month with an average mean temperature of 76.5^{o}F. Precipitation is well distributed throughout the year with the maximum in July and August and the minimum in February. The average annual snowfall is 19 inches, but it is extremely variable, ranging from 0 to 45 inches (Reference 1).

2.3 Principal Flood Problems

Flooding within the Town of Culpeper occurs mainly when heavy rainfalls cause water levels on Mountain Run and tributaries to exceed their bank elevations. There is little past flooding history and no accounts of any major flood damage. Flood problems are aggravated on Mountain Run by a series of bridges within the town which constrict flood flows and alter the course of flow.

A USGS gaging station, located on Mountain Run above Culpeper, recorded a maximum discharge on August 18, 1955, of 5,440 cfs, which was established as a 35-year frequency storm event (Reference 2). This gage is located between two dams that were built after 1955; therefore no correlation was made with present discharges.

2.4 Flood Protection Measures

A total of five Soil Conservation Service (SCS) dams regulate flow above the Town of Culpeper corporate limits. These lakes, all located in Culpeper County, were built to prevent flooding in Culpeper and secondarily provide storage for the town's drinking supply. Three of the dams, located in the uppermost portions of the Mountain Run watershed, were built in 1959 and 1960 and regulate a total of approximately 5,200 acre-feet of flood storage. The remaining two dams, Lake Pelham and Lake Catalpa, were built in 1973 and regulate flows on Mountain Run and Balds Run, respectively. Both of these newer dams are located just at the corporate limits of Culpeper and control a total area of 30 square miles with flood storage capacity of 9,800 acre-feet. These five structures effectively control 81 percent of the contributing watershed of Mountain Run where it leaves the Town of Culpeper.

The Culpeper Town Council in February of 1975 enacted zoning ordinances that protect the flood hazard areas by regulating the type of development occurring there. The flood hazard areas were delineated on the Flood Hazard Boundary Map for the unincorporated areas of Culpeper County, prepared by a private consulting firm in 1974 (Reference 3). The flood boundaries were based on 100-year frequency flood elevations plus 2 feet of freeboard. Development within those boundaries is limited to agriculture, parks and recreation, parking, utilities, and non-residential structures allowing unimpeded flow of floodwaters. The ordinance allows development on fill material in flood hazard areas in the event that an engineering study shows the fill does not adversely affect the drainage or increases flooding within the hazard area or any other property.

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short

intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding source studied in detail affecting the community.

Discharges for the 100-year frequency flood on Mountain Run were developed by use of the latest version of the SCS Technical Release No. 20 (TR-20) Computer Program (Reference 4). The TR-20 program provides for hydrologic analyses of a watershed under present conditions and various combinations of land cover/use and flood-retarding structures using single event storm rainfall-frequency data. Output consists of peaks and flood hydrographs, their time of occurrence, and water-surface elevations at any desired cross section of structure. The TR-20 program was used in lieu of existing analyses by others, which, after discussions with officials, were considered outdated. USGS regionalized methods were not recommended because they are not applicable to regulated watersheds.

Background information for the TR-20 program can be found in the SCS National Engineering Handbook, Section 4, (NEH-4) (Reference 5). This program takes into account several variables that are considered to affect storm water runoff. These include, drainage area, runoff curve number (CN), time of concentration (Tc), reach routing, reservoir routing and rainfall depth and duration.

To evaluate these variables, the entire watershed was divided into 10 subareas, and the channel was divided into reaches. The subareas were determined based on their hydrologic uniformity and to correspond to the locations of flood-retarding structures. Reach lengths were used to channel route flood flows through subareas. The subarea boundaries were delineated on USGS topographic maps at a scale of 1:24,000 with contour intervals of 10 feet and 20 feet (Reference 6).

Runoff curve numbers and indexes relating volume of runoff to land surface characteristics were determined for each subarea to represent the combined hydrologic effect of soil, land use, agricultural land treatment class, hydrologic condition, and

antecendent soil moisture. Soil maps produced by the United States Department of Agriculture for Culpeper County were used to determine the areal extent of each hydrologic soil group based on the SCS soil classification system (References 7 and 5). Land cover and uses were determined from aerial photographs and consisted mainly of farmland, woodland, and residential areas(Reference 8). Agricultural treatment was based on the aerial photography, and hydrologic condition was assumed to be good. Antecedent soil moisture condition II was assumed (Reference 5). CN values were taken from tables in Urban Hydrology for Small Watersheds (TR-55) (Reference 9). A single weighted CN was calculated for each subarea based on the percentage of each land use and soil type.

Tc calculations were based on travel times for consecutive components of the drainage conveyance system. The methods used were as outlined in Technical Release No. 55 (TR-55), and include sheet flow, shallow concentrated flow, and open channel flow (Reference 9). The USGS topographic maps were used to determine flow types and slopes (Reference 6).

Stream flow routing of hydrographs in the TR-20 program was by the modified Att-Kin Method with a typical cross section stage-discharge-end area curve representing each reach. Typical valley cross sections were taken from the USGS topographic maps (Reference 6). Rating curves were developed for each section using normal depth as computed by the U. S. Army Corps of Engineers (COE) HEC-2 Computer Program (Reference 10).

Reservoir routing through the five dams was accomplished in the TR-20 model by the storage-indication method as described in NEH-4 (Reference 5). The elevation-discharge-storage data required by the TR-20 program were obtained directly from the SCS original design notes and computations. Only the storage area established for flood control at the dams was considered. Storage below the elevation of the principal spillway was not used. The SCS data included an adjustment for aerated sediment load.

Precipitation data were obtained from the most current rainfall maps published by the National Weather Service and reprinted in TR-55 (Reference 9). The 100-year frequency, 24-hour duration, rainfall depth is 8 inches and an aerial reduction factor of 0.96 was applied. The TR-20 type II rainfall distribution was used.

A summary of the drainage area-peak discharge relationships for the stream studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MOUNTAIN RUN					
Approximately 3,350 feet downstream of corporate limits of Town of Culpeper (350 feet upstream of County Road 699)	36.69	*	*	6,182	*
Approximately 650 feet upstream of old Brandy Road bridge	33.81	*	*	4,982	*
Approximately 250 feet upstream of Old Rixeyville Road bridge	28.59	*	*	3,421	*
At upstream corporate limits of Town of Culpeper (Lake Pelham Dam Spillway)	25.90	*	*	1,280	*

*Data not available

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Stream cross section data for the backwater analyses of Mountain Run were obtained using aerial surveys for the overbanks and field surveys for the channel (Reference 11 and 12). All bridges and culverts were field surveyed to obtain road elevations and structural dimensions. Cross sections were adjusted where necessary for ineffective flow areas, especially in the vicinity of bridges where flow was constricted.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the Flood Insurance Rate Map (Exhibit 2)

Water-surface elevations of floods of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 10). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water-surface elevations for Mountain Run were

estimated using normal depth, starting approximately 5,000 feet downstream of the corporate limits.

Channel and overbank roughness factors (Mannings "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the stream and floodplain areas. The channel "n" values for Mountain Run ranged from 0.040 to 0.055, and the overbank "n" values ranged from 0.040 to 0.150.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with contour intervals of 10 and 20 feet (Reference 6).

For the streams studied by approximate methods, the floodplain boundaries were delineated using the Flood Hazard Boundary Map for the Town of Culpeper (Reference 13).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above

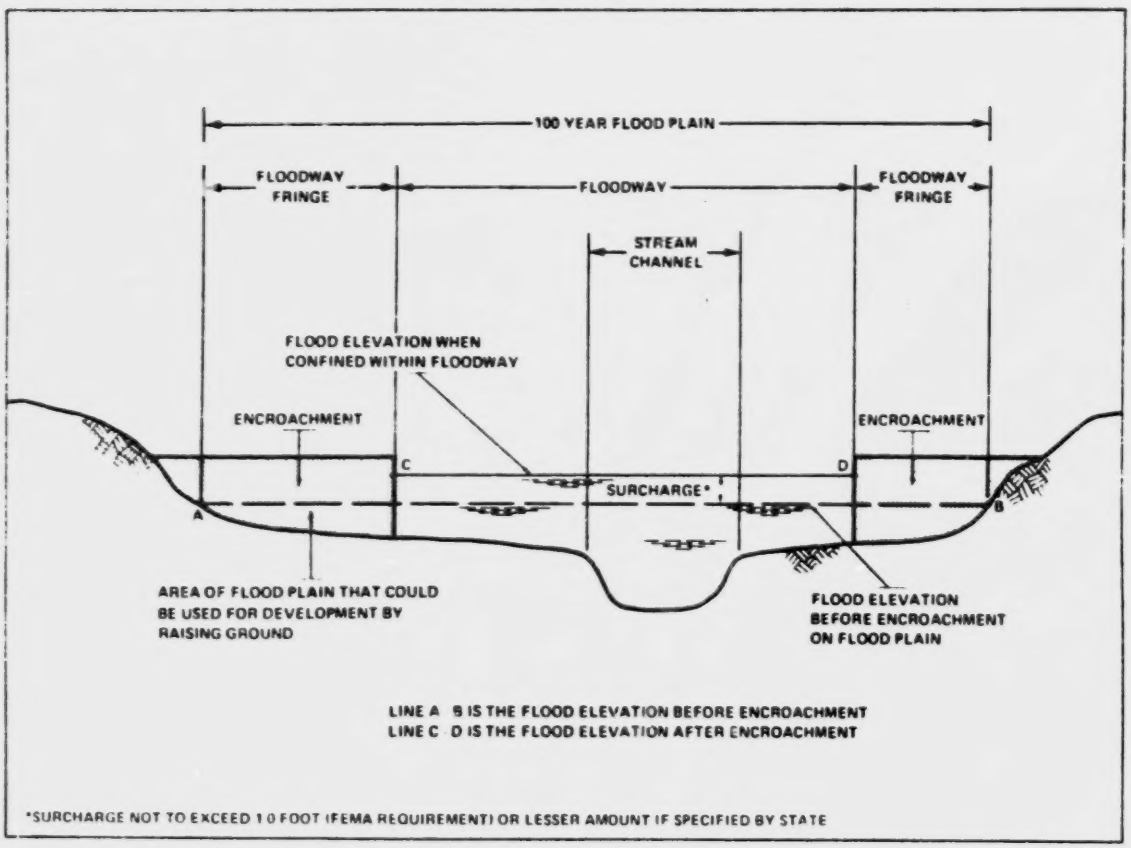
the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 2

No floodway was computed on Mountain Run due to existing ordinances currently limiting development within the 100-year floodplain.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain,and to areas of 100-year flooding where average depths are less than 1 foot, areas of 10-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

A Flood Hazard Map was prepared by Patton, Harris, Rust and Guy, which was officially adopted by the Town Council (Reference 14). No attempt was made to resolve differences in discharges and elevations between that study and this Flood Insurance Study.

A Flood Insurance Study has been prepared for the unincorporated areas of Culpeper County (Reference 3). The results of that study do not agree with the more detailed results of this study.

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the Town of Culpeper (Reference 13).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Liberty Square Building (Second Floor), 105 South Seventh Street, Philadelphia, Pennsylvania 19106.

9.0 BIBLIOGRAPHY AND REFERENCES

1. Rappahannock-Rapidan Planning District Commission, Comprehensive Plan for Culpeper, Virginia, April 13, 1982.

2. Virginia Department of Highways and Transportation, Drainage Manual, January 1, 1980.

3. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Unincorporated Areas of Culpeper County, Virginia, Washington, D. C., July 7, 1978.

4. U. S. Department of Agriculture, Soil Conservation Service, Technical Release No. 20, Computer Program, Project Formulation, Hydrology, Washington, D. C., 1983.

5. U. S. Department of Agriculture, Soil Conservation Service, National Engineering Handbook, Section 4, Hydrology, Washington, D.C., August 1972.

6. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Intervals 10 and 20 Feet: Culpeper West, Virginia, Photorevised 1979; Culpeper East, Virginia, Photorevised 1978; Castleton, Virginia, Photorevised 1978; Brandy Station, Virginia, Photorevised 1978.

7. U. S. Department of Agriculture and Virginia Agricultural Experiment Station, Soil Survey of Culpeper County, Virginia, November 1952.

8. U. S. Department of Agricultural Stabilization and Conservation Service, National High Altitude Photography, Culpeper, Virginia, 1:12,000, Salt Lake City, Utah, 1980 and 1983.

9. U. S. Department of Agriculture, Soil Conservation Service, Technical Release No. 55, Urban Hydrology for Small Watersheds, Washington, D. C., June 1986.

10. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, April 1984.

11. Air Survey Corporation of Virginia of Reston, Virginia, Photogrammetric Cross Sections, Mountain Run, Culpeper, Virginia, 1986.

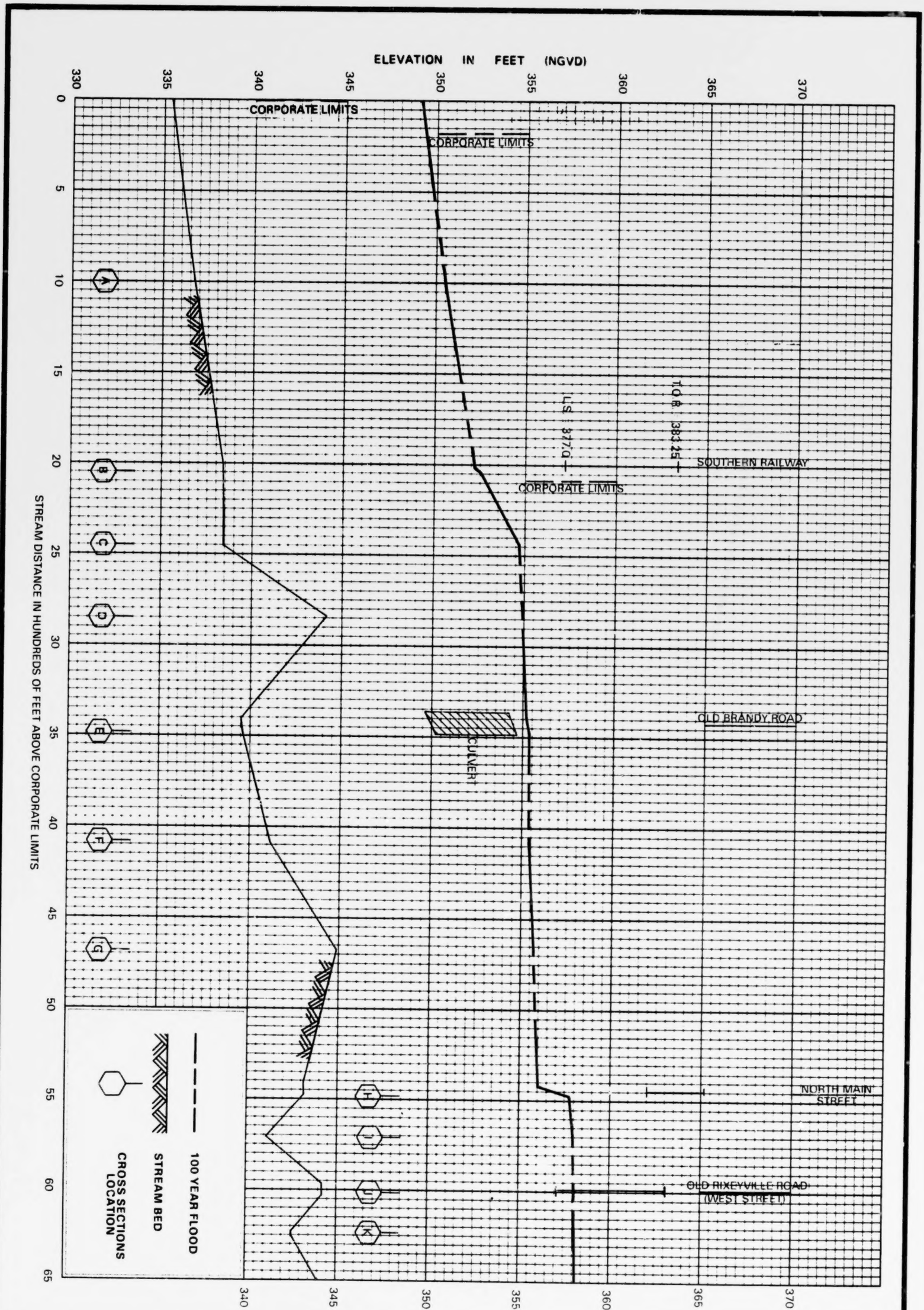
12. Cervantes and Associates, P. C., Fairfax, Virginia, Field Survey, Mountain Run, Culpeper, Virginia, 1986.

13. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Town of Culpeper, Culpeper County, Virginia, August 29, 1975.

14. Patton, Harris, Rust and Guy, Fairfax, Virginia, "Official Flood Hazard Map for the Town of Culpeper," July 30, 1974.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 1	0001	357.02	Chiseled square in curb on northeast corner of traffic island at the intersection of State Route 229 and U. S. Route 29 Business.
RM 2	0001	365.64	Chiseled square on the southwest bridge abutment of the North Main Street Bridge (U. S. Route 29 Business) over Mountain Run.
RM 3	0001	414.19	Chiseled Circle on southwest corner of intersection of Davis Street and West Street.
RM 4	0001	401.63	Sanitary manhole lid located at intersection of West Street and Scanlon Street.



01P

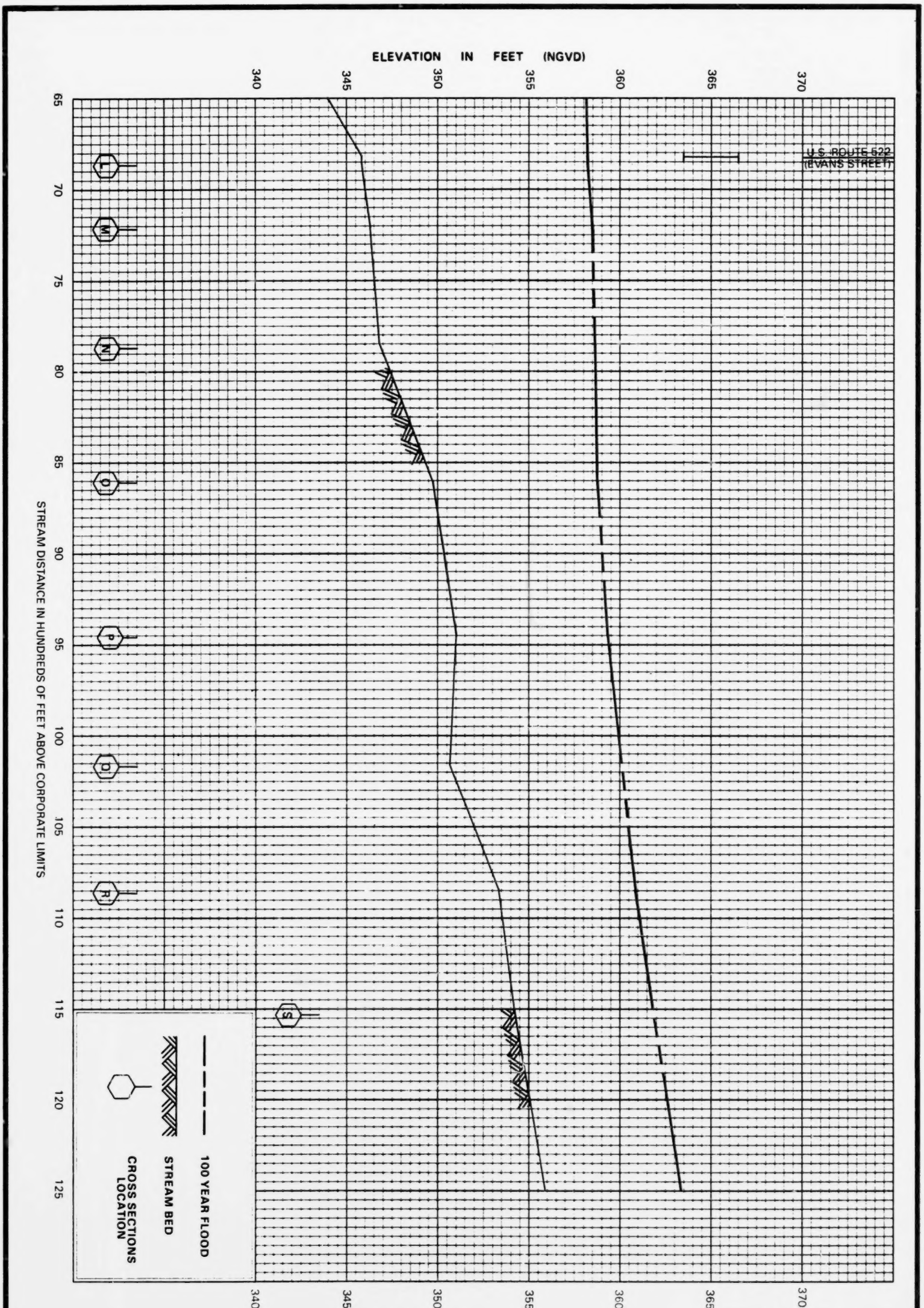
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CULPEPER, VA

(CULPEPER CO.)

FLOOD PROFILES

MOUNTAIN RUN



FEDERAL EMERGENCY MANAGEMENT AGENCY

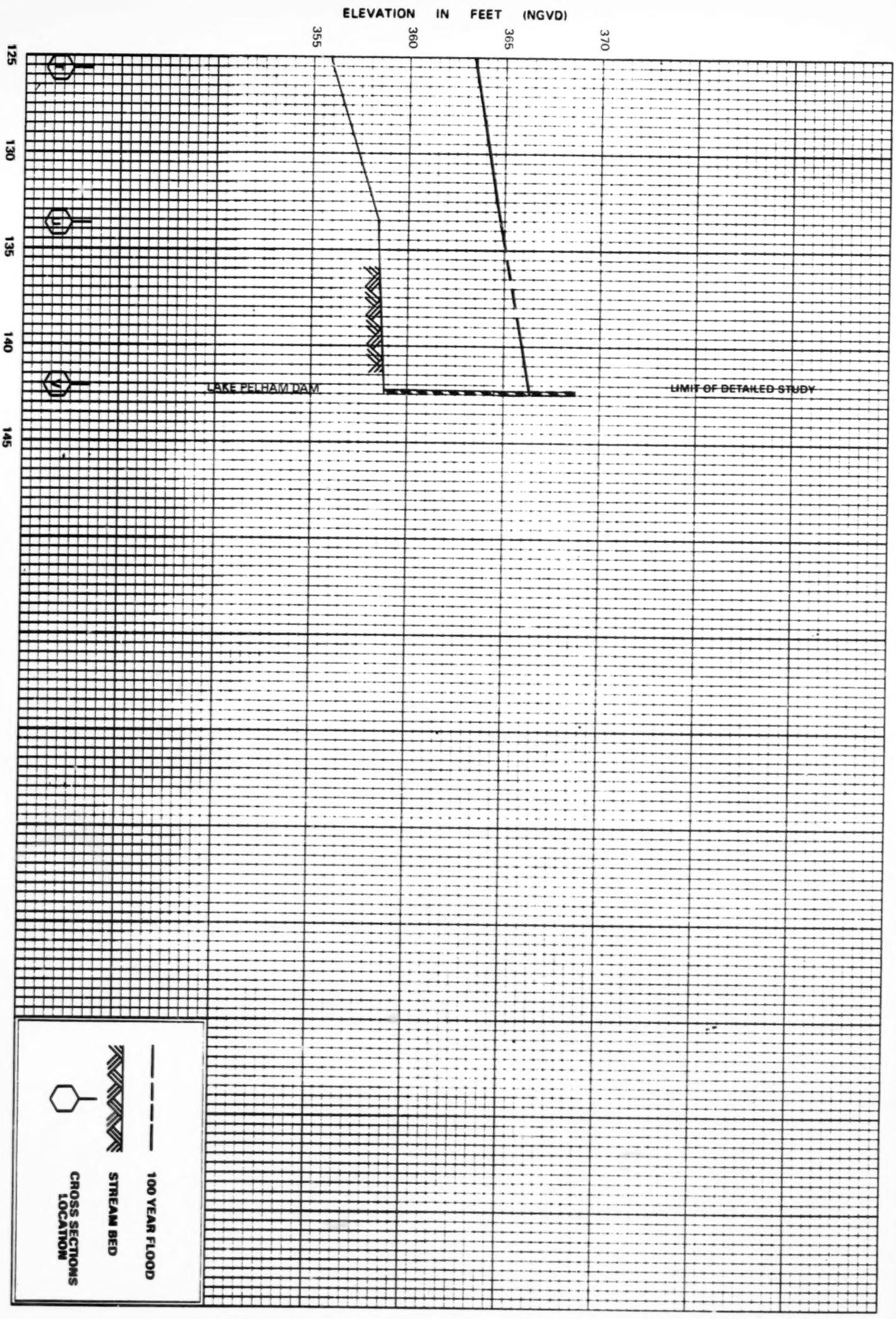
TOWN OF CULPEPER, VA

(CULPEPER CO.)

FLOOD PROFILES

MOUNTAIN RUN

02P



FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CULPEPER, VA

(CULPEPER CO.)

FLOOD PROFILES

MOUNTAIN RUN